

The Digestive System

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About the Digestive System

The digestive system is responsible for the processing and uptake of nutrition. Every cell in an organism needs energy and an array of nutrients to remain alive. Humans ingest a variety of foods; these can be classified by their nutrition content as carbohydrates (sugars), lipids (fats), and proteins.

Digestion begins in the **mouth** with the help of the teeth, tongue and salivary glands. As we chew our food, it is broken down into smaller pieces using our teeth. The salivary glands release saliva, and with the help of the tongue the saliva is mixed in with the chewed food. Saliva helps move the food to the back of the mouth and it also contains chemicals to break down some sugars. Once the food is swallowed, it moves down the esophagus.

The **esophagus** is the tube in the throat that brings food from the mouth to the stomach. It is about 10 inches long and is muscular. These muscles help transport food to the stomach.

The **stomach** is a pear-shaped sack that produces and stores hydrochloric acid. This acid can break down large molecules of food into smaller molecules. It has strong muscles at both ends to keep the acid in the stomach. when the food is broken down into smaller molecules, it moves into the small intestine.

The **small intestine** is a coiled tube-like organ measuring 7 meters (22 feet) long. The main job of the small intestine is to absorb nutrients from the food and bring the nutrients to the blood where they can be circulated throughout the body. The wastes that are left then pass to the large intestine.

The **large intestine**, or **colon**, holds waste products until elimination can occur. Its main function is to absorb

water from the indigestible parts of food so the body can use the water. After all of the water has been removed from the waste, it is stored in the **rectum** until it can be eliminated from the body. When waste is eliminated from the body it passes through the **anus**, which is the opening to the external environment and the end of the digestive system.

The time it takes to digest food depends on its composition- a fatty meal takes longer to digest than one rich in sugars or proteins. On average, digestion takes about 55 hours in men and 72 hours in women. Food spends around 2-3 hours in the stomach, six hours in the small intestine, and 50-60 hours in the large intestine.

There are a few other organs that help with digestion including the liver, the gallbladder, and the pancreas. The **liver** does many things for the body but its main function in digestion is to produce **bile**.

Once it is produced, it is sent to the **gallbladder**, a balloon like structure that stores the bile until the body needs it. The bile's purpose is to help the small intestine break down fats.

Another organ that produces digestive juices is the pancreas. The **pancreas** is a lumpy white organ that produces pancreatic juices, which help break down carbohydrates, proteins, and fats in the small intestine.

One additional structure that is associated with the digestive system is the appendix, although it does not aid in the digestive process. The **appendix** is a pouch located where the small and large intestines meet, on the right side of the body. Occasionally it can become inflamed and it is necessary for it to be removed, a condition called **appendicitis**.

MOST*

VOCABULARY

Anus

Appendix

Appendicitis

Bile

Colon

Esophagus

Gallbladder

Large intestine

Liver

Mouth

Pancreas

Rectum

Stomach

Small intestine

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